

## Patent Claims

1. Piston ring with a gap (5), a friction surface (2), an inner surface (3) as well as the upper and lower flanks (4), where the area of the inner surface (3) is planned for a non-constant cross-section cut (7), which when viewed from the direction of the surface is built larger in the area of the gap (5) as is the area diametrically opposed from the gap (6). It is characterized by the piston ring featuring a wall thickness that varies in the surface, where in the area of the gap (5) the wall thickness is smaller than the area diametrically opposite (6) from the gap (5), where the relationship between the wall thickness and the cross-section cut is continually so formed that the piston ring, viewed from the surface, presents a constant twist angle ( $\varphi$ ).
2. Piston ring according to Claim 1, thereby characterized that the relationship between the wall thickness and the cross-section cut remains constantly depicted that the resistance moments ( $Wt$ ) and the Bending stress load ( $Mt$ ) in an installed condition, seen from the surface, the constant twist angle ( $\varphi$ ) is satisfied by the following formula:

[mathematical formula illegible]

$$\varphi = Mt / G \cdot I(\varphi)$$

where

$\varphi$  is the twist angle

$G$  is the Slide module

$I$  is the polar surface moment of inertia.

$Mt$  is the bending load

3. The piston ring according to Claim 1 or Claim 2, thereby characterized that the cross-section cut (7) is formed by a bevel.

4. Piston ring according to Claim 3, thereby characterized that the bevel (7) in the surface direction occurs with angle  $\alpha$ , where angle  $\alpha$  is variable in the surface direction.
5. Piston ring according to Claim 3, thereby characterized that the bevel (7) in the surface direction occurs with angle  $\alpha$ , where angle  $\alpha$  is constant in the surface direction.
6. Piston ring according to Claim 1 or 2, thereby characterized that the cross-section cut is formed by means of an angular exclusion.
7. Piston ring according to Claims 1 through 6, thereby characterized that the cross-section cut (7) is planned in the area of the upper and lower flanks (4).